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To: Distribution Date: October 3, 1997
From: J. M. Garman
Subject: Massachusetts Compliance: Cigarettes / Smoking Machine Port Study

The puff parameters documented within the Massachusetts Regulations produce a significant increase in the delivery of Total Particulate Matter within the smoking analysis. Bleeding of TPM material through the Cambridge filter pad occurs when applying the FTC practice of smoking 5 cigarettes per smoking machine port. The FTC procedure does not specify a maximum limit of TPM on a 44 mm Cambridge filter pad. ISO 4387, "Cigarettes - Determination of Total and Nicotine Free Dry Particulate Matter using a Routine Analytical Smoking Machine," 1991, states that "the amount of TPM on a 44 mm Cambridge filter pad shall not exceed 150 milligrams." Utilizing the Massachusetts smoking protocol, TPM's of greater than 300 milligrams per filter pad are possible when smoking 5 high-delivery cigarettes through one Cambridge filter pad.

In this study, the Massachusetts and normal FTC smoking procedures were applied to a unequilibrated, non-filtered brand, (Best Buy, Brand Code BAZ1), where 16 ports of data was obtained via three and via five cigarettes per port. Data generated for non-ventilated, Kentucky Reference cigarettes, (J. M. Garman memo, "Massachusetts Compliance: Cigarette Taping Study," October 2, 1997), was also used in this study.

All the resultant Cambridge filter pads from the 5 cigarettes per port smoking did show significant bleed-through of TPM material. The attached results show that, at the TPM levels measured, this bleed-through has no effect on the resultant nicotine and tar results. The results for five cigarettes per port were consistent to those obtained utilizing three cigarettes per port.



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MASSACHUSETTS COMPLIANCE:
NUMBER OF CIGARETTES PER PORT STUDY

Sample	Puff Count	TPM mg/cigt	Nicotine mg/cigt	Water mg/cigt	Tar mg/cigt	CO mg/cigt
2R1F (5 cigt/port) *	13.8	56.5	2.59	18.52	35.4	32.7
Std. Dev.	0.35	1.81	0.115	1.20	0.98	1.21
N	16	16	16	16	16	16
2R1F (3 cigt/port) **	14.0	54.6	2.58	16.77	35.2	32.2
Std. Dev.	0.41	2.21	0.087	1.49	1.45	0.76
N	16	16	16	16	16	16
1R3F (5 cigt/port) *	12.1	45.9	2.25	14.25	29.4	26.1
Std. Dev.	0.34	1.62	0.099	0.97	0.94	0.93
N	16	16	16	16	16	16
1R3F (3 cigt/port) **	12.5	46.5	2.25	14.38	29.9	26.3
Std. Dev.	0.61	3.47	0.152	2.06	1.89	1.60
N	16	16	16	16	16	16
IM#16 (5 cigt/port) *	10.6	45.2	1.86	14.27	29.1	26.3
Std. Dev.	0.29	1.74	0.052	0.90	1.06	0.93
N	16	16	16	16	16	16
IM#16 (3 cigt/port) *	10.7	45.5	1.83	14.67	28.9	26.5
Std. Dev.	0.42	2.19	0.155	1.05	1.18	0.87
N	16	15	15	15	15	14
BAZ1 (5 cigt/port)	13.0	63.0	2.96	12.14	47.9	26.2
Std. Dev.	0.38	1.27	0.057	0.71	0.65	0.72
N	16	16	16	16	16	16
BAZ1 (3 cigt/port)	13.2	63.1	3.00	12.40	47.7	26.5
Std. Dev.	0.45	2.47	0.165	0.87	1.64	0.98
N	16	16	16	16	16	16

* Data obtained from study documented in memo by J. M. Garman, "Massachusetts Compliance: Cigarette Taping Study," October 2, 1997.

** Data obtained as part of above referenced study. Cigarette tipping paper was half taped per Massachusetts protocol. These brands are non-ventilated and showed no difference in deliveries from the corresponding non-taped version.